CLAIMS

What is claimed is:

1. A communication system comprising:

a transmitter for generating a signal, wherein the signal is generated from a partial response signal produced from mapping an input bit stream to a complex number domain and wherein the transmitter suppresses a plurality of sub-symbols of the partial response signal to produce a truncated signal used to modulate a carrier signal to generate the signal; and

a receiver in communication with the transmitter through a noisy channel for receiving a noisy signal, wherein the receiver recovers the signal from the noisy signal by eliminating noise resulting from transmission through a noisy channel.

2. The system of claim 1, wherein the transmitter comprises:

a mapping unit for mapping the input bit stream to a complex number domain;

a cyclic convolver unit coupled to the mapping unit for generating a partial response signal; and

a prefix unit for appending a cyclic prefix to a leading edge of the truncated signal.

3. The system of claim 2, further comprising a transform unit for converting the partial response signal to a time domain signal and suppressing the plurality of sub-symbols.

4. The system of claim 2, wherein the receiver comprises a detector unit for recovering the signal from the noisy signal.

5. The system of claim 2, wherein the suppressed plurality of sub-symbols are distributed evenly at the edges of the partial response signal.

6. A method for increasing bit-rate through effective bandwidth gain in a system utilizing an orthogonal frequency division multiplexing technique, the method comprising:

selecting a cyclic convolver having predefined values;

applying the cyclic convolver to a signal having a plurality of sub-symbols to produce a partial response signal having the plurality of sub-symbols, wherein the values of the cyclic convolver are selected such that a portion of the plurality of sub-symbols of the partial response signal are reduced to near zero amplitude;

dropping the portion of the plurality of sub-symbols with near zero amplitude from the partial response signal to produce a truncated partial response signal; and

appending a cyclic prefix at a leading edge of the truncated partial response signal.

7. The method of claim 6, further comprising:

transforming the partial response signal using an inverse fast fourier transformation technique to produce a time based signal;

transmitting the time based signal through a noisy channel to produce a noisy signal; and

recovering the time based signal from the noisy signal at a receiver.

8. A system for delivering information from a source to a destination, the system comprising:

means for converting the information to a frequency domain signal;

means for transforming a frequency domain signal to a time domain signal, wherein the means for transforming is coupled to the means for converting and wherein the transformation results in a plurality of sub-symbols having near zero amplitude; and

means for dropping the plurality of sub-symbols having near zero amplitude to produce a truncated time domain signal, wherein the means for dropping is coupled to the means for transforming.

9. The system of claims 8, further comprising:

means for delivering the truncated time domain signal from the source to the destination, wherein the means for delivering is coupled to the means for dropping; and

means for receiving the delivered truncated time domain signal, wherein the means for receiving is coupled to the means for delivering and wherein the means for receiving comprises:

means for recovering a received truncated time domain signal from the delivered truncated time domain signal, wherein the received truncated time domain signal represents the truncated time domain signal;

means for inserting a plurality of zero value samples in the received truncated time domain signal to produce a received time domain signal, wherein the means for inserting is coupled to the means for recovering and wherein the received time domain signal represents the time domain signal; and

means for transforming the received time domain signal to a received frequency domain signal, wherein the means for transforming the received time domain signal is coupled to the means for inserting and wherein the received frequency domain signal represents the frequency domain signal.

10. The system of claim 9, further comprising means for recovering a received information from the received frequency domain signal, wherein the means for recovering is coupled to the means for transforming the received time domain signal and wherein the received information represents the information.